Claims:

AEG Identifikationssysteme GmbH,
Söflinger Straße 100, D-89077 Ulm

Method for fitting a transponder to a metal body, and a transponder module for carrying out the method

1. Method for fitting a transponder (2) with a chip (3) and a coil (4) to a metal body (9), characterized in that

   the coil (4) is wound in the form of a bar and is electrically connected at its ends to the electrical connections (3a, 3b) of the chip (3), forming a transponder (2), and

   the transponder (2) formed in this way is introduced in its entirety into a cavity (8) in the metal body (9) in such a manner that the coil axis (X) lies parallel to the metal surface, and at least part of the coil (4) is positioned in the region of a window (10) in the metal body (9).

2. Method according to Claim 1, characterized in that the cavity (8) is a groove in the surface of the metal body (9).

3. Method according to Claim 1, characterized in that the transponder (2) is introduced into the cavity (8) in such a manner that it is essentially completely surrounded by metal except for the region of the window (10).

4. Method according to Claim 3, characterized in that the transponder (2) is introduced into a hole (8), which runs parallel to the surface of the metal body (9), as a cavity.

5. Method according to Claim 3 or 4, characterized in that the window (10) in whose region the coil (4) is positioned is smaller than the transponder (2).

6. Method according to Claim 5, characterized in that the window (10) has a shorter length and/or a narrower width than the coil (4) of the transponder (2).

7. Method according to one of the preceding claims, characterized in that the transponder (2) is embedded in an elastic material (6) forming a transponder module (1) before being introduced into the cavity (8) in the metal body (9).

8. Method according to Claim 7, characterized in that a soft plastic material, in particular silicone or polyurethane, is used as the elastic material (6).

9. Method according to Claim 7 or 8, characterized in that the transponder is introduced into a sleeve (7) composed of a non-metallic material, in particular composed of glass or plastic.

10. Method according to Claim 9, characterized in that the sleeve (7) is filled with the elastic material (6) once the transponder (2) has been introduced.

11. Method according to Claim 9 or 10, characterized in that the sleeve (7) is tubular and the transponder (2) is introduced into the sleeve (7) such that the coil axis runs parallel to the tube axis.

12. Method according to one of the preceding claims, characterized in that the cavity (8) in the metal body (9) is encapsulated with a non-metallic elastic material (11) once the transponder (2) has been introduced.

13. Method according to Claim 12, characterized in that a plastic material, in particular an epoxy resin, is used as the encapsulation material (11).

14. Method according to Claim 13 and one of Claims 7 to 10, characterized in that the encapsulation material (11) is harder than the elastic material (6) in which the transponder (2) is embedded.

15. Method according to one of the preceding claims, characterized in that the coil (4) is wound on a ferrite core.

16. Transponder module having a transponder (2) which has a chip (3) and a coil (4) which is electrically connected to it, and is embedded in an elastic material (6), characterized in that the coil (4) is wound in the form of a bar, the transponder (2) is introduced into a sleeve (7) which is, in particular, tubular, and the sleeve (7) is filled with the elastic material (6).

17. Transponder module according to Claim 16, characterized in that the tubular sleeve (7) is open at its axial ends.

18. Transponder module according to Claim 16, characterized in that the tubular sleeve (7) is closed at at least one axial end.

19. Transponder module according to one of Claims 16 to 18, characterized in that the coil (4), which is in the form of a rod, is wound on a ferrite core (5).

20. Transponder module according to one of Claims 16 to 19, characterized in that the coil (4), which is in the form of a rod, is aligned parallel to the longitudinal axis of the sleeve (7).